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Genesis of the Zinc Ores of Edwards District, St. Lawrence County, N.Y. By C. H. SMYTH, JR. New York State Museum Bulletin, No. 201. Albany, N.Y., 1917. Pp. 39, pls. 12.

This report presents the results of laboratory studies of ore from the zinc deposits of the Edwards district, which is about 15 miles south of the Canton area described in Bulletin 185, reviewed above, and the geology of the two areas is very similar. The ore minerals are sphalerite, pyrite, and galena, and occur as fillings of narrow cracks or as replacements along shear zones in the Grenville crystalline limestone. The deposits are of the high-temperature type, and the sequence of mineral deposition is as follows: (1) diopside, tremolite, (2) pyrite, (3) sphalerite, (4) galena, (5) talc, (6) serpentine. This sequence of mineral deposition indicates changing conditions from intense-contact, metamorphic conditions to those normal for the depths involved and without outside agencies. At all stages during this transition from intense to moderate conditions calcite was subject to repeated solution and recrystallization.

The granite magmas which intrude the Grenville sediments are considered the source of the ore minerals and during the cooling of the magma, gases and solutions were given off which carried the sulphur and metals into the country rocks where they were precipitated. The wall rock of the sphalerite is always crystalline limestone while the typical pyrite ore is always in schist or gneiss. Also the pyrite ore is always rich in graphite while the zinc ore contains but little graphite. The typical pyrite ore contains but little sphalerite but the zinc ore contains considerable pyrite.

These deposits are compared with zinc deposits of other regions and especially with the contact zinc deposits of the Christiania district described by Goldschmidt. Excellent photomicrographs show clearly the various mineral relations described in detail in the text. This is a valuable contribution to the subject of contact metamorphic ore deposits.

J. F. W.

New Edition of Coal, Oil, Gas, Limestone, and Iron Ore Map. West Virginia Geological Survey.

Thoroughly revised, showing oil and gas pools, many anticlinal lines not heretofore shown, and also booklet giving the names and post-office addresses of all the principal coal-mining operators in West Virginia up to July 1, 1921. Scale, 8 miles to the inch. Price, folded in strong envelope and delivered by mail, \$1.00. Remittances to West Virginia Geological Survey, Box 848, Morgantown, West Virginia.

Detailed Report on Nicholas County. By DAVID B. REGER. West Virginia Geological Survey, No. 31. 1921. 847 pages+xx pages of introductory matter; illustrated with 34 half-tone plates and 22 zinc etchings in the text, accompanied by a separate case of topographic and geologic maps.

Nicholas County contains the New River Coal Group, as also the Kanawha Group and the lower members of the Allegheny Series in its northern portion. This report contains a chapter on the "Paleontology of Nicholas County" and a short description of the chert deposits of West Virginia by Dr. W. Armstrong Price. Price, including case of maps, delivery charges paid by the Survey, \$3.00. Extra copies of topographic map, 75 cents; of the geologic map, \$1.00. Remittances to West Virginia Geological Survey, Box 848, Morgantown, West Virginia.

Geology and Mineral Deposits of a Part of Amherst Township, Quebec. By M. E. WILSON. Memoir 113, Canadian Geological Survey, Ottawa, 1919. Pp. 54, figs. 3, pls. VII, maps 2.

This district is thirty miles north of the Ottawa River and almost equidistant from Montreal and Ottawa, and lies within the dissected southern border of the Laurentian Plateau. The presence of extensive deposits of kaolin near the southern part of Amherst Township is of considerable geological interest, because kaolin is commonly thought to be the product of surface-weathering and in Canada, for the most part, the deposits formed by surface-weathering have been removed by Pleistocene continental glaciation.

The oldest rocks of this region belong to the Grenville sedimentary series and consist of quartzite, garnet gneiss, and crystalline limestone. These sediments are intruded by the Buckingham series of basic igneous rocks (gabbro, pyroxene diorite, and pyroxene syenite). Both the foregoing series are intruded by batholithic masses of granite-syenite gneiss. Glacial drift and marine Champlain clay partially fill the depressions between the rock ridges.

The kaolin and graphite deposits of the district are described in detail. The kaolin occurs in an extensive zone of fracturing and faulting in the Grenville quartzite and garnet gneiss and has been brought in by solutions from either above or below and deposited along open fracture planes or by the replacement of the quartzite wall rock. Crystals of tourmaline, a mineral formed at high temperatures, in the kaolin and the nearby outcrops of granite-gneiss suggest a deep-seated origin for